

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawaii**

March 10, 2006

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

REGARDING: Conservation District Enforcement File No. OA-05-50
Unauthorized Structure and Unauthorized Construction of
Improvements

BY: Gregory Longnecker
and Mami R. Phillips-Longnecker

TMK's: (1) 3-3-034:001

AREA OF USE: \approx 1508.5 square feet

AREA OF PARCEL: \approx 7.99 acres (348,078 square feet)

LOCATION: Palolo Hillside, Island of Oahu

SUBZONE: General

DESCRIPTION OF AREA:

The subject 7.99-acre parcel is located on the east hillside of Palolo Valley. Residential land use surrounds three sides of the subject area: to the east above on Wilhelmina Rise; to the south across Pakui St; and below along 10th Avenue in Palolo Valley. The subject parcel lies within the General subzone of the Conservation District (**Exhibits 1, 2 & 3**).

There are two Conservation District Use Permits (CDUP) for the subject area: CDUP OA-1687 approved by the Board of Land and Natural Resources (Board) on August 24, 1984 for fencing, clearing, planting and orchards and CDUP OA-1803 approved by the Board on October 11, 1985 for twelve picnic shelters and one storage shed. Approved plans state that each picnic shelter and the storage shed was 80 square feet (**Exhibit 4, 5 & 6**).

On February 8, 1993, the former Office of Conservation and Environmental Affairs issued a notice to the landowner to cease all land use and construction activity as the time frame for permitted construction activity had expired on October 11, 1988 (**Exhibit 7**) - **Staff notes there is no follow up report in Departmental records.** However, County records state that construction for the twelve picnic shelters and shed was completed by 1994 (**Exhibit 8 & 9**).

ALLEGED UNAUTHORIZED LAND USES:

In the Summer of 2004, two gentleman came to the Office of Conservation and Coastal Lands (OCCL) and requested information regarding the subject property (**Exhibit 10**). It was explained to OCCL Staff that one of them was related to the landowner and they were proposing improvements on the subject parcel and requested information regarding what types of approvals would be necessary. Staff verified that the subject area was indeed within the Conservation District. They were advised that the Department of Land and Natural Resources has jurisdiction over Conservation District lands and were told to write to the OCCL with information consisting of what was currently existing there, what was being proposed and to submit preliminary plans if available.

In February 2005, the OCCL received complaints regarding construction noise on the hillside. A cursory site inspection on March 3, 2005 noted that unauthorized work was taking place (**Exhibit 11**). An onsite inspection occurred on the afternoon of March 14, 2005 and revealed that extensive improvements had been made to the unauthorized existing structure (**Exhibit 12, 13, 14 & 15**). The landowners were issued a Notice and Order to cease any further activity (**Exhibit 16**). It is believed that no additional work has taken place since the issuance of the stop work order. The specific Conservation District violation, which are the subject of this submittal are: 1) A pre-existing unauthorized structure; and 2) unauthorized construction of improvements.

REFERRAL OF ALLEGED VIOLATIONS TO THE LAND BOARD RATHER THAN THE HEARING OFFICER/ADMINISTRATIVE PENALTY SYSTEM (HOAPS):

A decision was made to refer the subject alleged violations to the Board of Land and Natural Resources rather than HOAPS due to two alleged violations in a single report, and because of the willful nature of the activity. HOAPS draws a distinction between Level I and Level II violations. Level I violations are of the more serious category and must be referred to the Board of Land and Natural Resources, while Level II violations may be processed through HOAPS. HOAPS includes criteria for determining Level I and

Level II violations. In this case, the subject alleged violations rise to Level I because of the number of violations and because of the willful nature of the violations.

RESOLUTION OF UNAUTHORIZED LAND USES:

Conservation District

Chapter 13-5, Hawaii Administrative Rules (HAR) and Chapter 183C, Hawaii Revised Statutes (HRS), regulate land uses in the Conservation District by identifying a list of uses that may be allowed by Conservation District Use Permit. The chapters also provide for penalties, collection of administrative costs and damages to State land for uses that are not allowed or for which no permit has been obtained. Chapter 13-5, HAR defines "land use" in part as: the placement or erection of any solid material on land or the grading, removing or dredging of any material or natural resource on land.

The unauthorized existing structure and the unauthorized improvements to the existing structure are land uses that occurred in the conservation district without a permit, and therefore allegedly violate the above chapters. This report and staff recommended conditions seek to resolve the conservation district violations. Pursuant to Chapter 183C, HRS, the maximum fine for a conservation district violation is \$2,000.00 per violation, or \$2,000.00 per day.

DISCUSSION

There is no record of approval for the existing structure upon which recent construction has taken place. Aerial photos from the year 2000 indicate the presence of a large structure on the premises (**Exhibit 17**). Current aerial photos from the year 2005 indicate that this may be the same structure as shown in 2000 (**Exhibit 18**). Proposed plans submitted by the landowner describe the unauthorized structure as having an upper area of 535.5 square feet, deck areas of 551 square feet and a lower floor area of 422 square feet (**Exhibit 19, 20 & 21**).

According to previously submitted environmental reports for the CDUPs of the subject area, "the slopes are 40% to 50%." In addition, the area is described as Rock Land (rRK). According to the United States Department of Agriculture, Soil Conservation Service, in cooperation with the University of Hawaii Agricultural Experiment Station describes rock land (rRK) as "areas where exposed rock covers 25 to 90 percent of the surface...The rock outcrops and very shallow soils are the main characteristics...It has a high shrink-swell potential. Buildings on the steep slopes are susceptible to sliding when the soil is saturated. Foundations and retaining walls are susceptible to cracking." (**Exhibit 22**)

Due to the high residential use down slope of the subject area, Staff is concerned about uses and activities taking place on this steep hillside. **Exhibits 23 & 24** of this submittal illustrate boulders around the unauthorized structure. Because the structure in question has no authorization, there is a concern regarding the structural integrity as well as its potential for causing down slope damage. Therefore the landowner should be required to take measures to minimize or eliminate these hazards. Staff will be recommending that the landowner submit a geotechnical evaluation to determine potential rockfall and erosion hazard resulting from the unauthorized structure. Staff believes that land uses should be limited on this slope for reasons of public health and safety as well as for the view plain resource. (**Exhibit 25, 26 & 27**).

Furthermore, Staff believes representatives acting on behalf of the landowner, willfully disregarded OCCL's jurisdiction over the subject matter. Staff made the representatives aware that the subject area was in the Conservation District. Staff informed the representatives that review would be required to make a determination as to what type of approval would be required. The section of the law, HRS, Section 183C-7, that refers to enforcement of our conservation laws should have a deterrent effect on the landowner to prevent them from doing or allowing malfeasance within the Conservation District.

This submittal and notice of the Board's meeting will be sent to the alleged property owners by certified mail to the address of record in Hawaii.

FINDINGS

1. That the landowners acquired land with an unauthorized structure;
2. That the landowners did in fact, authorize, cause or allow unauthorized construction to an existing unauthorized structure to occur;
3. That the landowners through his representatives, willfully disregarded Conservation District law;
4. That the alleged unauthorized land uses is of a serious nature;
5. That the unauthorized land use occurred within the State Land Use Conservation District, General subzone.

AS SUCH, STAFF RECOMMENDS AS FOLLOWS:

That, pursuant to Chapter 183C, Hawaii Revised Statutes (HRS), the Board find the landowner in violation of Chapter 183C and Chapter 13-5, Hawaii Administrative Rules (HAR), and is subject to the following:

1. The landowner violated the provisions of Chapter 183C, Hawaii Revised Statutes (HRS), and chapter 13-5, Hawaii Administrative Rules (HAR), in one instance by failing to obtain the appropriate approval for unauthorized improvements within the Conservation District. The alleged is fined a total of \$2,000.00 for one Conservation District violation;
2. The landowner is fined an additional \$500.00 for administrative costs associated with the subject violations (\$100.00 DOCARE and \$400.00 OCCL staff);
3. The landowner shall pay all fines (total \$2,500.00) within ninety (90) days of the date of the Board's action;
4. The landowner shall at his own expense submit a geo-technical evaluation study by a licensed geo-technical engineer to evaluate the structural integrity of the unauthorized structure and the potential for rockfall on the subject parcel to the Department within six months of the Board's action;
6. Upon review of the geo-technical evaluation by the Department, the Department shall determine if the structure should be removed, reinforced and/or whether an After the Fact (ATF) Conservation District Use Application (CDUA) may be filed for the unauthorized structure;
7. The landowner shall adhere to the Department's recommendation to either remove, reinforce or file an ATF CDUA within six months of the Department's determination;
8. The landowner shall be prohibited from utilizing the unauthorized structure, unless a CDUP is obtained;
9. That the landowners, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the landowner, its successors, assigns, officers, employees, contractors, and agents under these findings or relating to or connected with these findings;
10. That in the event of failure of the alleged to comply with any order herein, the landowner shall be fined an additional \$2,000.00 per day until the order is complied with; and

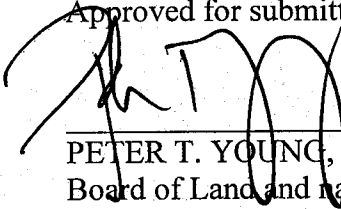
11. That in the event of failure of the landowner to comply with any order herein, the matter shall be turned over to the Attorney General for disposition, including all administrative costs.

Respectfully submitted,



K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

Approved for submittal:



PETER T. YOUNG, Chairperson
Board of Land and Natural Resources

OAHU

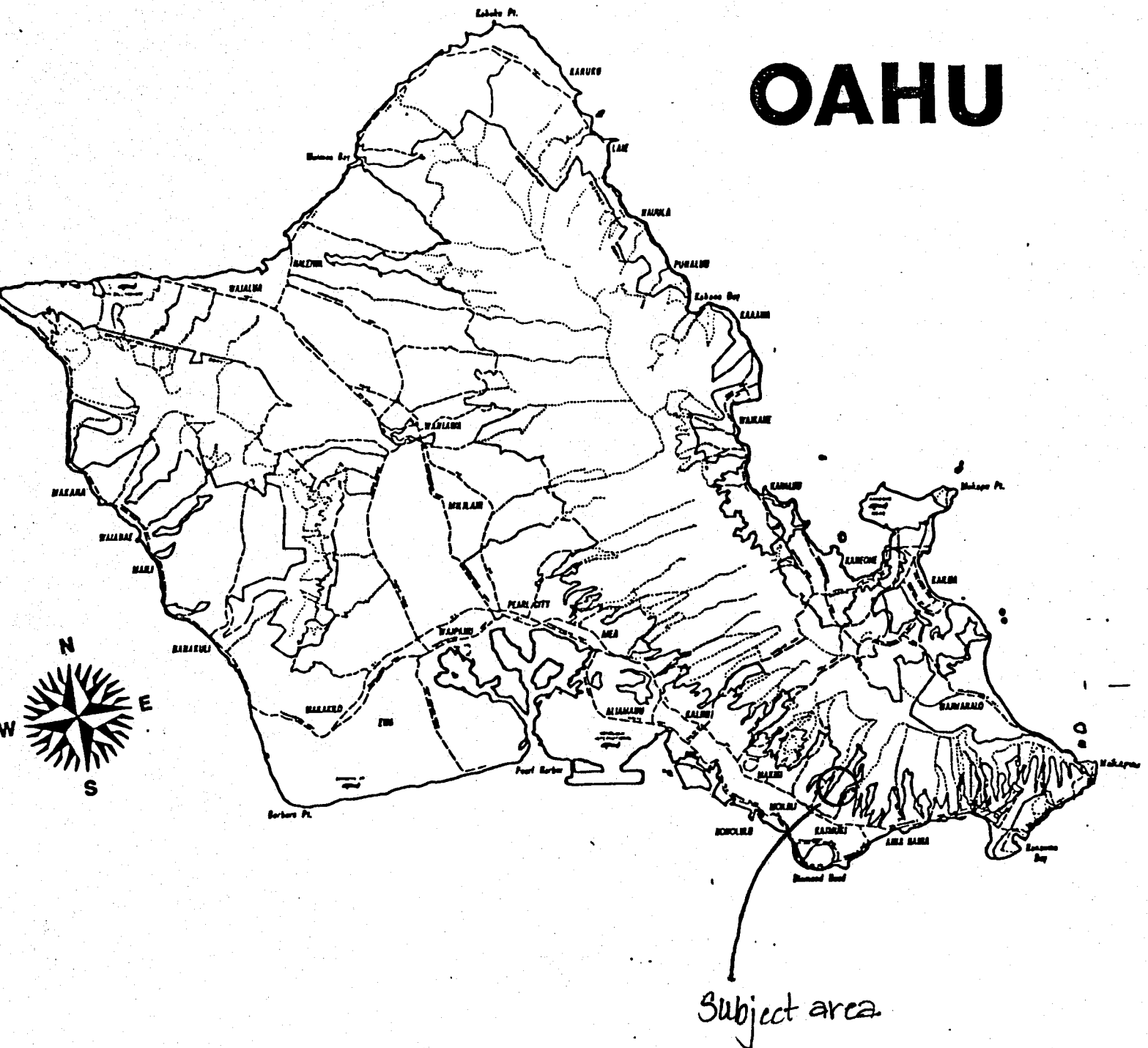


EXHIBIT I



HEI

City

Home Property Search

Address Parcel ID Advanced

RECORD DETAILS

- Parcel Data
- Permits
- Land Details
- Assessed Values
- Sales History
- Residential
- Commercial
- Other Improvements
- Sketch
- Tax Bill
- Tax Details 2005
- Tax Details 2004
- Tax Details 2003
- Tax Details 2002
- Tax Details 2001
- ▶ Parcel Map

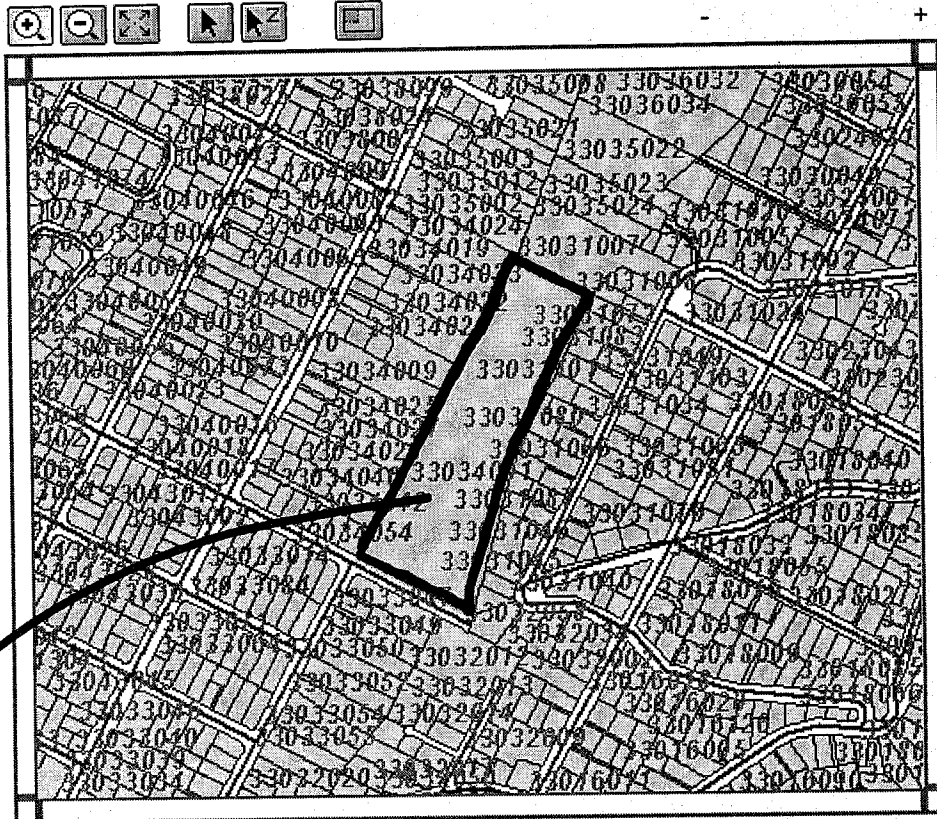
330340010000

3552 PAKUI ST

LONGNECKER, GREGORY S

CUR

Return



subject parcel

Data Copyright Honolulu County Public Access [Disclaimer] Last Updated: 2/12/2006
 Site Design Copyright 1999-2004 Akanda Group LLC. All rights reserved.

EXHIBIT 2

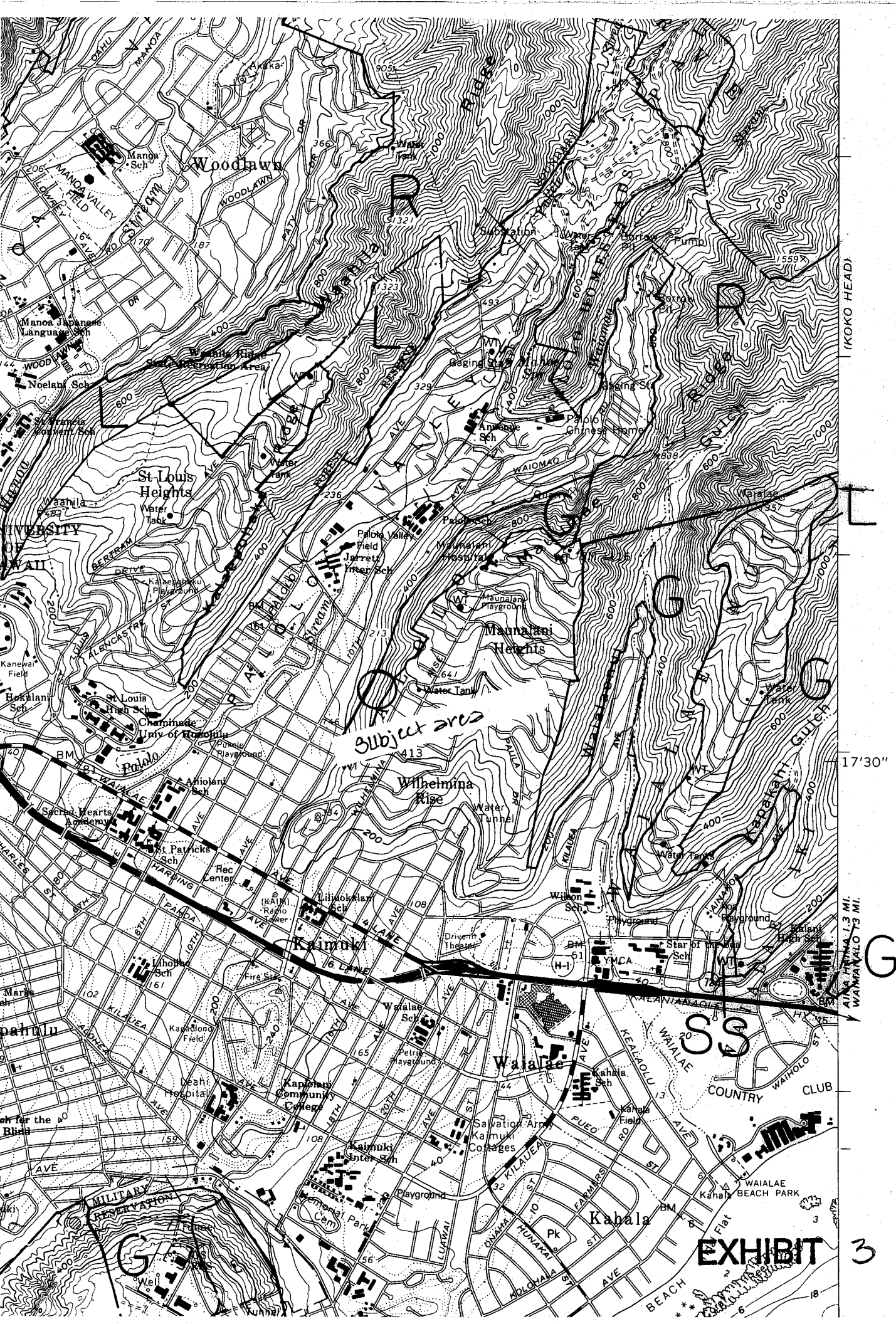


EXHIBIT 3

SEP 06 1984

REF. NO.: CPO-507-85
FILE NO.: OA-4/5/84-1687
180-Day Exp. Date: 10/2/84

Mr. & Mrs. T. E. Bonds
5441 Opihi Street
Honolulu, Hawaii 96821

Dear Mr. & Mrs. Bonds:

Conservation District Use Application for
an Orchard and Fence and Wall Construction

We are pleased to inform you that the Board of Land and Natural Resources, at its meeting of August 24, 1984, approved your application subject to the following conditions:

1. That the applicant comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and City and County governments, and applicable parts of Section 13-2-21 of Title 13, Chapter 2, Administrative Rules, as amended;
2. The applicant, its successors, and assigns shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
3. Other terms and conditions as prescribed by the Chairperson;
4. In the event any unanticipated sites or remains such as shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered during construction, the applicant shall stop work and contact the Historic Preservation Office at 548-7460 or 548-6403;
5. The construction, alteration, moving, demolition and repair of any building or other improvement on lands within the Conservation District, shall be subject to the building codes of the respective counties in which the lands are located; provided that prior to the commencement of any construction, alteration or repair of any build-

EXHIBIT 4

Mr. & Mrs. T. E. Bonds
Page 2

CFC-507-35
OA-1687

ing or other improvement, four (4) copies each of the final location map, plans and specifications shall be submitted to the Chairperson, or his authorized representative, for approval of which three (3) copies will be returned; and

6. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, and, all work and construction must be completed within three (3) years of the approval of such use.

Should you have any questions on any of these conditions, please contact Mr. Gordon Soh of our Planning Office at 548-7837.

Very truly yours,

SUSUMU ONO, Chairperson

SUSUMU ONO, Chairperson
Board of Land and Natural Resources

xc: Oahu Board Members
Oahu Land Agent
C&C: DGP/DLU

bxc: DAR
DOFAW
DOWALD
DOCARE
NARS
LAND MGMT.
STATE PARKS/HIST. SITES

AS:rw
ao

OCT 22 1985

REF. NO.: CPO-1865-85
FILE NO.: OA-5/13/85-1803
180-Day Exp. Date: 11/9/85

Mr. and Mrs. T. E. Bonds
5441 Opihi Street
Honolulu, Hawaii 96821

Dear Mr. and Mrs. Bonds:

CONSERVATION DISTRICT USE APPLICATION
for Picnic Shelters and Storage Shed Use
Palolo, Oahu

We are pleased to inform you that the Board of Land and Natural Resources approved your application at its meeting of October 11, 1985, subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and County governments, and applicable parts of Section 13-2-21, Administrative Rules, as amended;
2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
3. If any unanticipated sites or remains of historic or prehistoric interest (such as shell, bone or charcoal deposits, human burials, rock or coral alignments, paving, or walls) are encountered during construction, the applicant shall stop work and contact the Historic Preservation Office at 548-7460 or 548-6408 immediately;

EXHIBIT 5

4. The applicant shall comply with all applicable Public Health Regulations;
5. The construction, alteration, moving, demolition and repair of any building or other improvement on lands within the Conservation District shall be subject to the building and grading codes of the respective counties in which the lands are located; provided that prior to the commencement of any construction, alteration, or repair of any building or other improvement, four (4) copies each of the final location map, plans, and specifications shall be submitted to the Chairperson, or his authorized representative, for approval of which three (3) copies will be returned;
6. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, and all work and construction must be completed within three (3) years of the approval of such use. Failure to comply with this condition shall render this application null and void;
7. The State of Hawaii shall not be responsible for any loss, liability, claim or demand for property damage, property loss, or personal injury including death caused by or resulting from any act or omission of the applicant or its contractor in connection with its exercise of the privileges herein granted;
8. That during construction of the project, the applicant take appropriate measures to prevent any loose boulders from rolling down the slopes and damaging the existing homes in the lower area;
9. That this approval does not grant any commercial use; and,
10. Other terms and conditions as prescribed by the Chairperson.

Please acknowledge receipt of this permit with the above noted conditions in the space provided below. Please sign two copies. Retain one and return the other.

REF:OCEA:SKK

FEB 8 1993

FILE NOS.: CUA OA-1803

OA-93-E-01

DOC. NO.: 1964

CERTIFIED MAIL

Mr. T. E. Bonds
5441 Opihi Street
Honolulu, Hawaii 96821

Dear Mr. Bonds:

SUBJECT: Time Restrictions on Completion of Picnic Shelters
Palolo, Oahu

This letter serves to inform you that the Department has initiated an investigation regarding compliance to Board imposed conditions regarding the development and completion of twelve (12) picnic shelters on parcel TMK: 3-3-34: 01, Palolo, Oahu. in

Our records indicate that the Land Board approved your Conservation District Use Application (OA-1803) for (12) twelve picnic shelters and a storage shed on October 11, 1985, subject to ten (10) conditions (enclosed).

Condition number six (6) identified, in part that: "all work and construction must be completed within three (3) years of the approval of such use." Thus, all construction should have been completed by October 11, 1988. Our records indicate that the Board did not authorize a time extension relative to this time restriction.

It has come to our attention that the subject project is not complete and that you are continuing to construct the subject structures. Please be informed that if this be the case, the subject activity is in violation of Chapter 183-41 HRS and Title 13, Chapter 2, of the Department's Administrative Rules.

EXHIBIT 7

Mr. T. E. Bonds

-2-

File Nos.: OA-1803
OA 93 E-01

Accordingly, you are instructed to immediately cease all land use and construction activity. Further, we would expect a written response from you within thirty (30) days of receipt of this notice informing us of any information, including a timeframe of development, pursuant to this matter. Should you desire to continue this project, a new Conservation District Use Application will be necessary.

Should you have any questions, please feel free to contact assigned staff planner, Ed Henry at 587-0377.

Thank you for your attention and cooperation regarding this matter.

Very truly yours,

/s/ JOHN P. KEPPELER, II

JOHN P. KEPPELER, II
Acting Chairperson

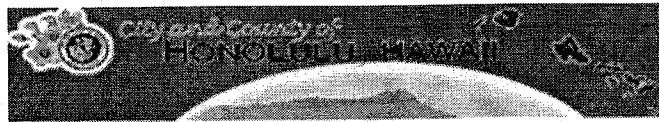
Enclosure

cc: DOCAFE
C&C Building Dept.

EF:skk

EH

12



330340010000

3552 PAKUI ST

LONGNECKER, GREGORY S

Other Buildings/Yard Improvements

2 of 2

TMK	330340010000
Type Code Description	MASONRY UTILITY SHED
Quantity	6
Description	SEE PERMT SCREEN
Area	80
Gross Building Value	
Year Built	1989

**Data Last Updated : 2/12/2006****Disclaimer**

The City and County of Honolulu Real Property Assessment & Treasury Divisions make every possible effort to produce and publish the most current and accurate information. No warranties, expressed or implied, are provided for the data herein, its use, or its interpretation. Utilization of the search facility indicates understanding and acceptance of this statement by the user.

Last Updated: 2/12/2006

Printed on Monday, February 13, 2006, at 3:15:39 PM EST

*Powered by Akanda***EXHIBIT 8**



330340010000

3552 PAKUI ST

LONGNECKER, GREGORY S

Other Buildings/Yard Improvements

1 of 2

TMK	330340010000
Type Code Description	MASONRY UTILITY SHED
Quantity	7
Description	SEE PERMT SCREEN
Area	80
Gross Building Value	
Year Built	1994

**Data Last Updated : 2/12/2006****Disclaimer**

The City and County of Honolulu Real Property Assessment & Treasury Divisions make every possible effort to produce and publish the most current and accurate information. No warranties, expressed or implied, are provided for the data herein, its use, or its interpretation. Utilization of the search facility indicates understanding and acceptance of this statement by the user.

Last Updated: 2/12/2006

Printed on Monday, February 13, 2006, at 3:16:06 PM EST

Powered by Akanda

EXHIBIT 9

Hygh Performance Archistructure
Design+Build Studio

— 8:30 AM —

MICHAEL NELMS
PRINCIPAL DESIGNER
GENERAL CONTRACTOR

141 NEVADA ST
EL SEGUNDO
CA 90245
P: 310.333.0898
F: 310.333.0604
WWW.HYPEARC.COM
MIKE@HYPEARC.COM

GREG'S # 291-0105
CELL
310-722-2125 MIKE'S #

HYPe ^{arc}

DESIGN+BUILD

1746-A MIKAHALA WAY
HONOLULU, HAWAII
9 6 8 1 8
CELL # 310-722-2125

KEVIN DAVIS 780-6638

MODERN INDUSTRIAL ALCHEMY

EXHIBIT 10

subject
structure

03/03/05



EXHIBIT 11

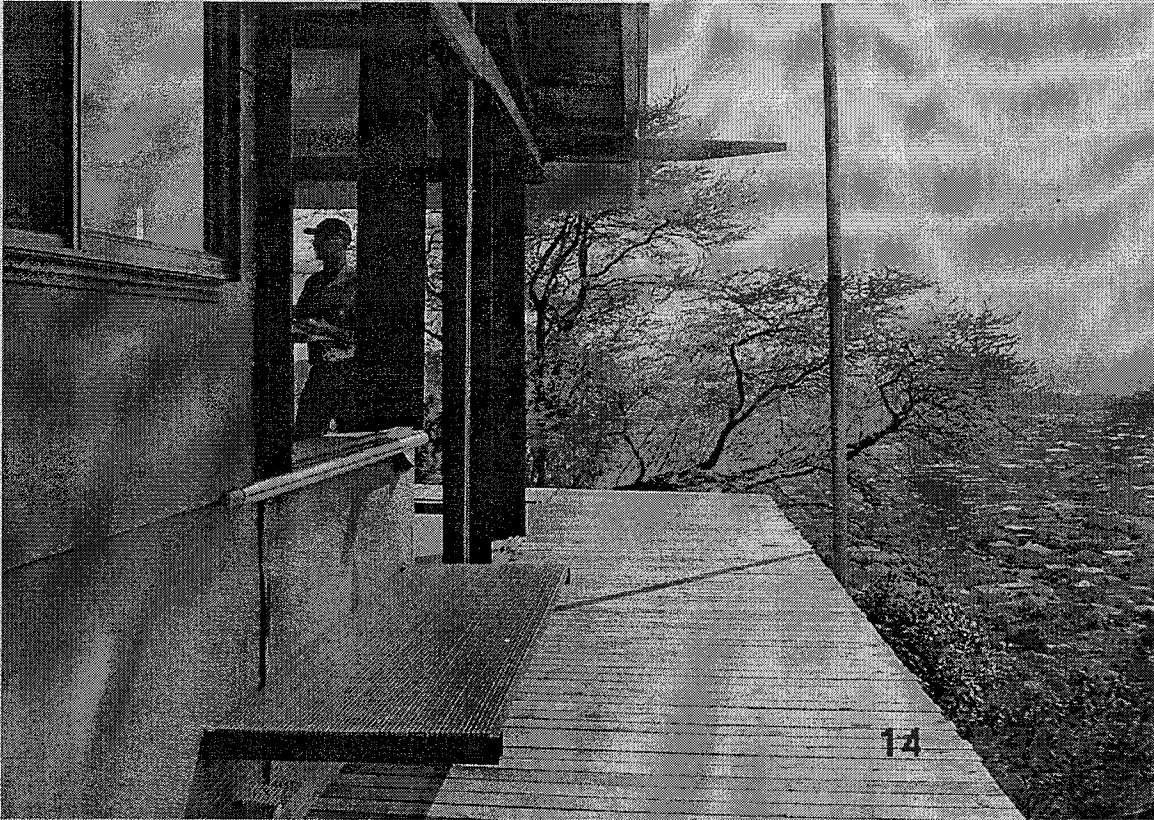


EXHIBIT 12

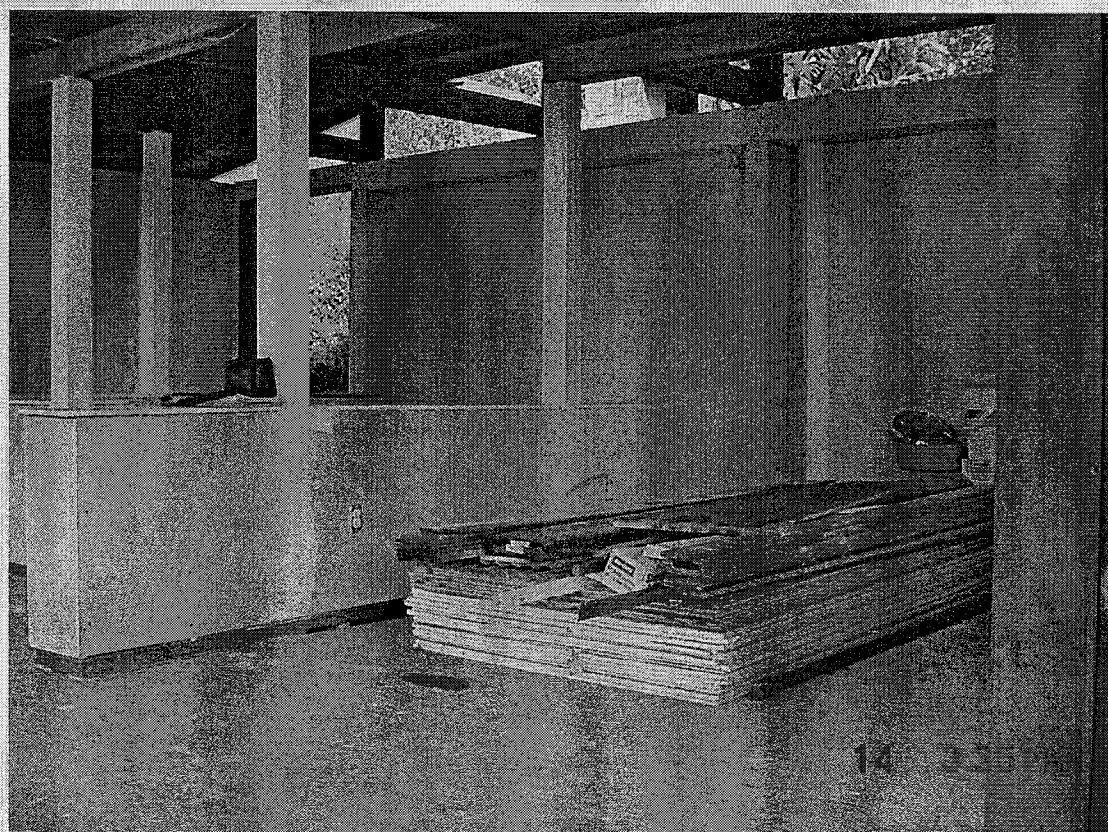
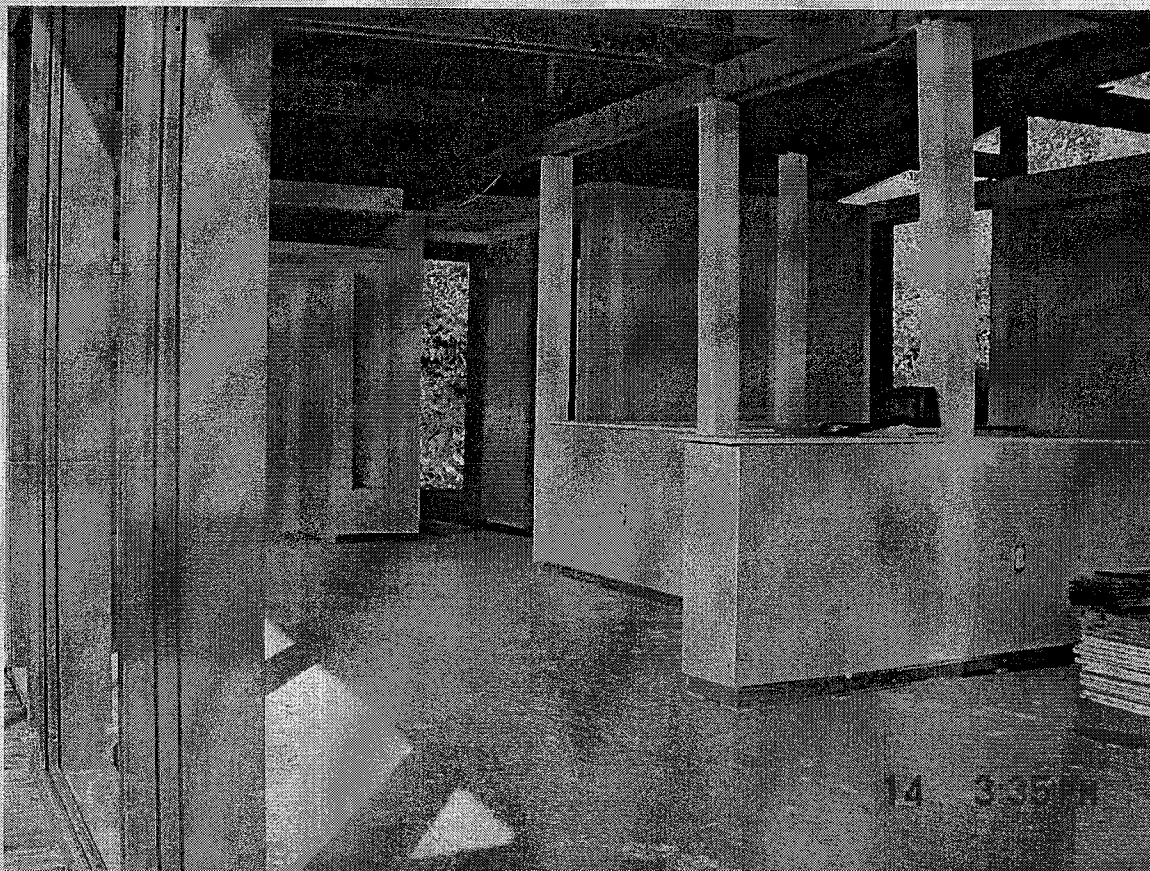


EXHIBIT 13

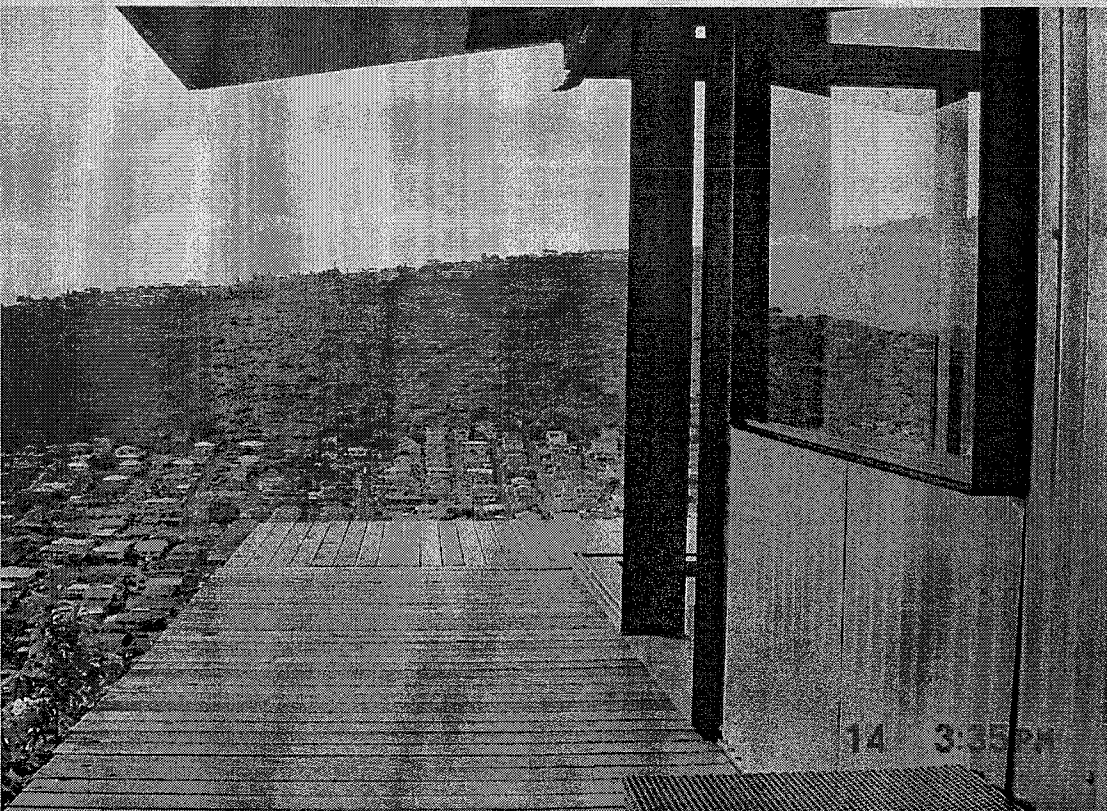


EXHIBIT 14

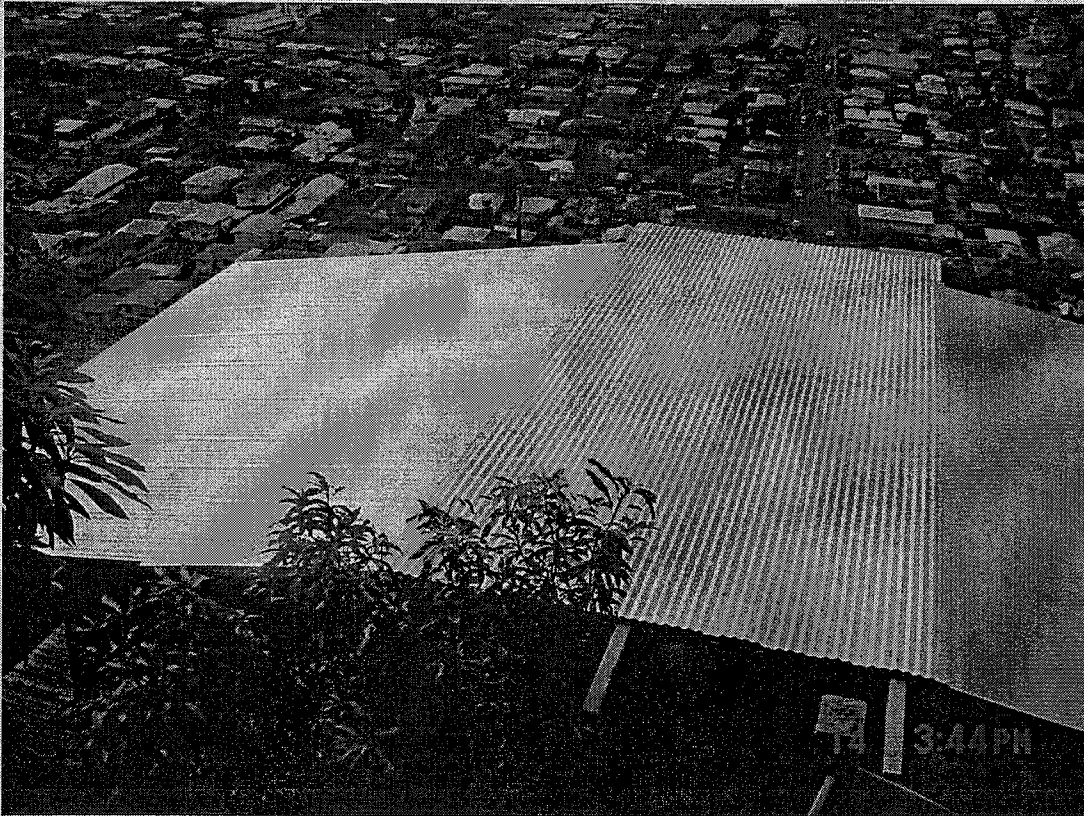


EXHIBIT 15

LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. Box 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON

ERNEST LAU
DEPUTY DIRECTOR

DEAN A. NAKANO
ACTING DEPUTY DIRECTOR FOR
THE COMMISSION ON WATER
RESOURCE MANAGEMENT

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

NOTICE AND ORDER

Mami R. Phillips-Longnecker
Gregory S. Longnecker
~~3552 Pakui Street~~
~~Honolulu, Hawaii 96830~~

March 3, 2005

SUBJECT: Illegal Activity in the Conservation District on Lands Identified as
Tax Map Key: (1) 3-3-034:001

NOTICE IS HEREBY GIVEN that you are in violation of Hawaii Administrative Rules (HAR) Title 13, Chapter 5, entitled "Conservation District" providing for land use within the Conservation District, enacted pursuant to Chapter 183C, Hawaii Revised Statutes (HRS).

An inspection of the premises on which the illegal activity has been conducted was made on March 3, 2005 by the Department of Land and Natural Resources. We have determined that:

- 1) The subject property, identified as tax map key: (1) 3-3-034:001 is in the Conservation District and is classified as General/Resource/Limited/Protected Subzone; GENERAL
- 2) The following uses were conducted on the subject premises: Unauthorized, alleged construction of Single family residence structure;
- 3) These uses were not authorized by the Department of Land and Natural Resources under Chapter 13-5, HAR.

YOU ARE HEREBY ORDERED TO CEASE any further activity on the subject premises. Should you fail to cease such illegal activity immediately, you will be subject to fines up to \$2,000 per day pursuant to Chapter 13-5, HAR, in addition to administrative costs incurred by the Department.

Please contact Sam Lemmo of the ^{OCC}~~Land~~ Division at 587-0381 to clear this matter.

By: 

PETER T. YOUNG, Chairperson
Board of Land and Natural Resources

cc: District Board Member
Planning Branch
District Branch

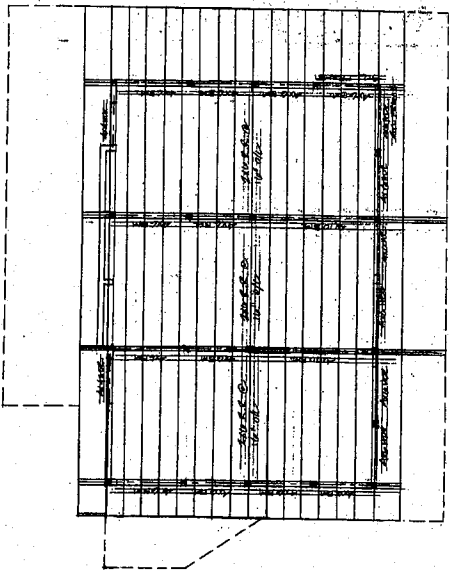
EXHIBIT 16

TMK 3-3-34:01
NOAA 2000 Aerial

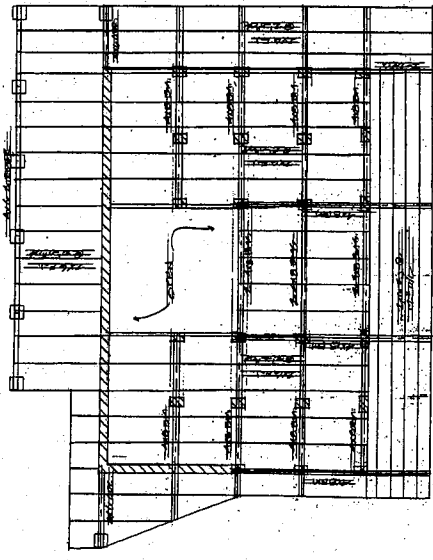
EXHIBIT 17



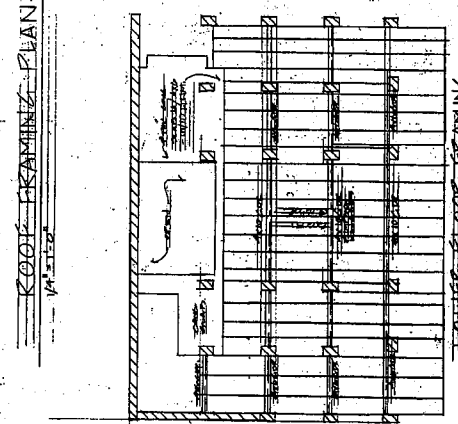
EXHIBIT 18



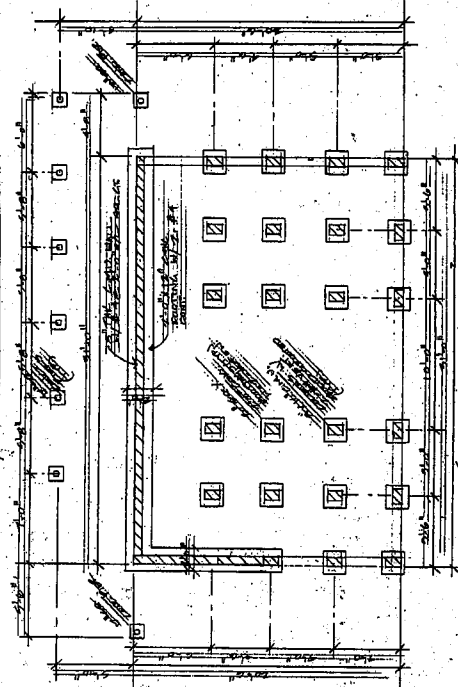
ROOF FRAMING PLAN
1/8" = 1'-0"



UPPER FLOOR FRAMING PLAN
1/8" = 1'-0"



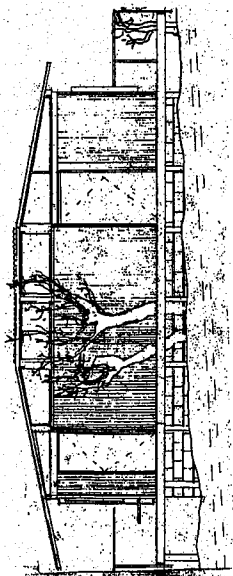
LOWER FLOOR FRAMING PLAN
1/8" = 1'-0"



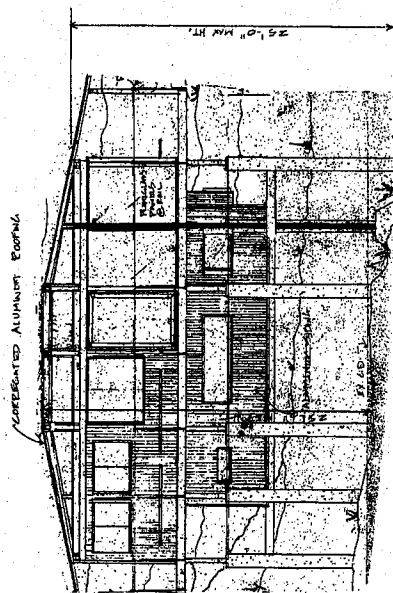
FOUNDATION PLAN
1/8" = 1'-0"

THIS WORK WAS PREPARED FOR THE
U.S. ARMY CORP. OF ENGINEERS
BY THE U.S. ARMY CORP. OF ENGINEERS
4-30-06

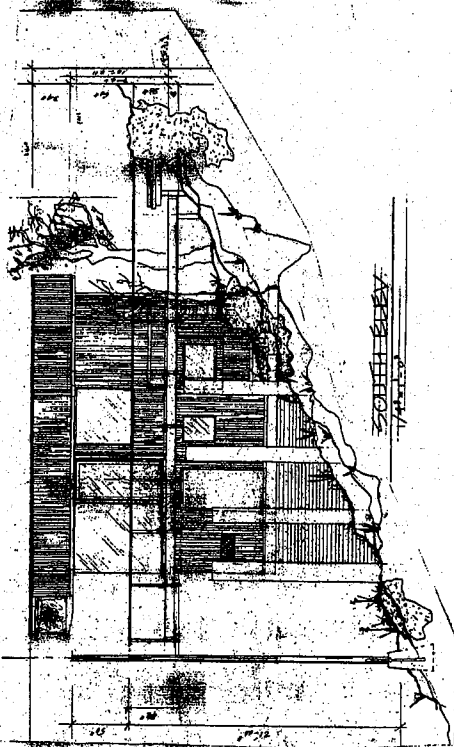




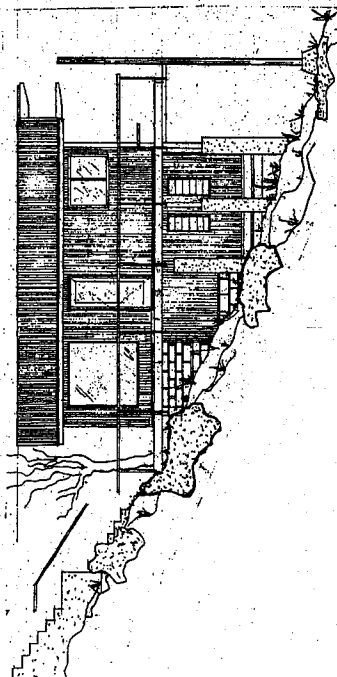
BAZEL



WEST ELEV.



1/41 11-01
A333 11-01



148-11-04 NORTH ELEV

THIS WORK WAS PREPARED BY ME OR
UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT WAS
BE UNDER MY OBSERVATION

Tom Sherry

SPECIALIST

4-30-06



Rock Land

Rock land (rRK) is made up of areas where exposed rock covers 25 to 90 percent of the surface. It occurs on all five islands. The rock outcrops and very shallow soils are the main characteristics. The rock outcrops are mainly basalt and andesite. This land type is nearly level to very steep. Elevations range from nearly sea level to more than 6,000 feet. The annual rainfall amounts to 15 to 60 inches.

Rock land is used for pasture, wildlife habitat, and water supply. The natural vegetation at the lower elevations consists mainly of kiawe, klu, piligrass, Japanese tea, and koa haole. Lantana, guava, Natal redtop, and molassesgrass are dominant at the higher elevations. This land type is also used for urban development. In many areas, especially on the island of Oahu, the soil material associated with the rock outcrops is very sticky and very plastic. It also has high shrink-swell potential. Buildings on the steep slopes are susceptible to sliding when the soil is saturated. Foundations and retaining walls are susceptible to cracking. (Capability classification VIIc, nonirrigated)

EXHIBIT 22

SOIL SURVEY OF THE ISLANDS OF KAUAI, OAHU, MAUI, MOLOKAI, AND LANAI, STATE OF HAWAII

BY DONALD E. FOOTE, ELMER L. HILL, SAKUICHI NAKAMURA, AND FLOYD STEPHENS, SOIL CONSERVATION SERVICE

SOILS SURVEYED BY DONALD E. FOOTE, CARL W. GURNSEY, ELMER L. HILL, BURTON R. LAUX, ROBERT C. MALMGREN, SAKUICHI NAKAMURA, GEORGE OTT, ERNEST ROBELLO, JR., FLOYD E. STEPHENS, AND DURWARD W. WOMACK, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE UNIVERSITY OF HAWAII AGRICULTURAL EXPERIMENT STATION

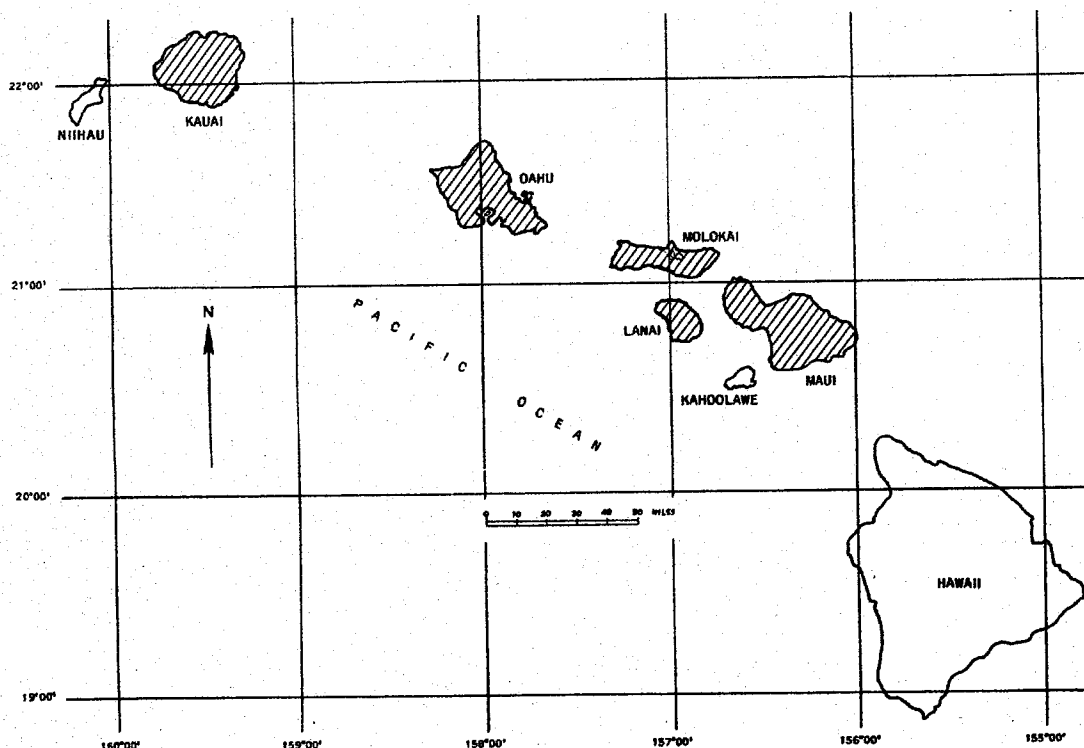


Fig. 1 - Location of islands Kauai, Oahu, Maui, Molokai and Lanai, state of Hawaii

KAUAI, OAHU, MAUI, MOLOKAI, and LANAI - five of the eight major islands in the State of Hawaii-make up the survey area (fig. 1). The Hawaiian Islands, the 50th State of the United States, lie in the Pacific Ocean is the principal city and the State capital. It is on the crossroads of the Pacific and serves as a gateway to Asia and the South Pacific. The area surveyed covers 1,463,820 acres, or 2,287 square miles. The total land area of Kauai is 355,000 acres, or 555 square miles; Oahu 386,500 acres, or 604 square miles; Maui 465,920 acres, or 728 square miles; Molokai 166,400 acres, or 260 square miles; and Lanai 90,000 acres, or 140 square miles. Most of the soils on the islands formed in volcanic material. A few formed in organic material and coral sand. The climate is characterized by mild temperatures. Annual rainfall, most of which occurs during the period October to April, ranges from 10 inches to more than 400 inches. The economy of the islands depends mainly on farming and ranching and on tourism. Sugarcane and pineapple are the principal crops. Cattle ranching is the principal livestock industry.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are on the islands, where they are located, and how they can be used. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants or crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those on other islands of the United States and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The soil series soil series and the soil phase soil phase are the categories of soil classification most used in a local survey (16).

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Molokai and Lahaina, for example, are the names of two soil series. All the soils of the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Molokai silty clay loam, 7 to 15 percent slopes, severely eroded, is one of several phases within the Molokai series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. Two such kinds of mapping units are shown on the soil map of the islands: soil complexes and soil associations.

A soil complex consists of areas of two or more soils, so intermingled or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils, joined by a hyphen. Kemoo-Badland complex is an example.

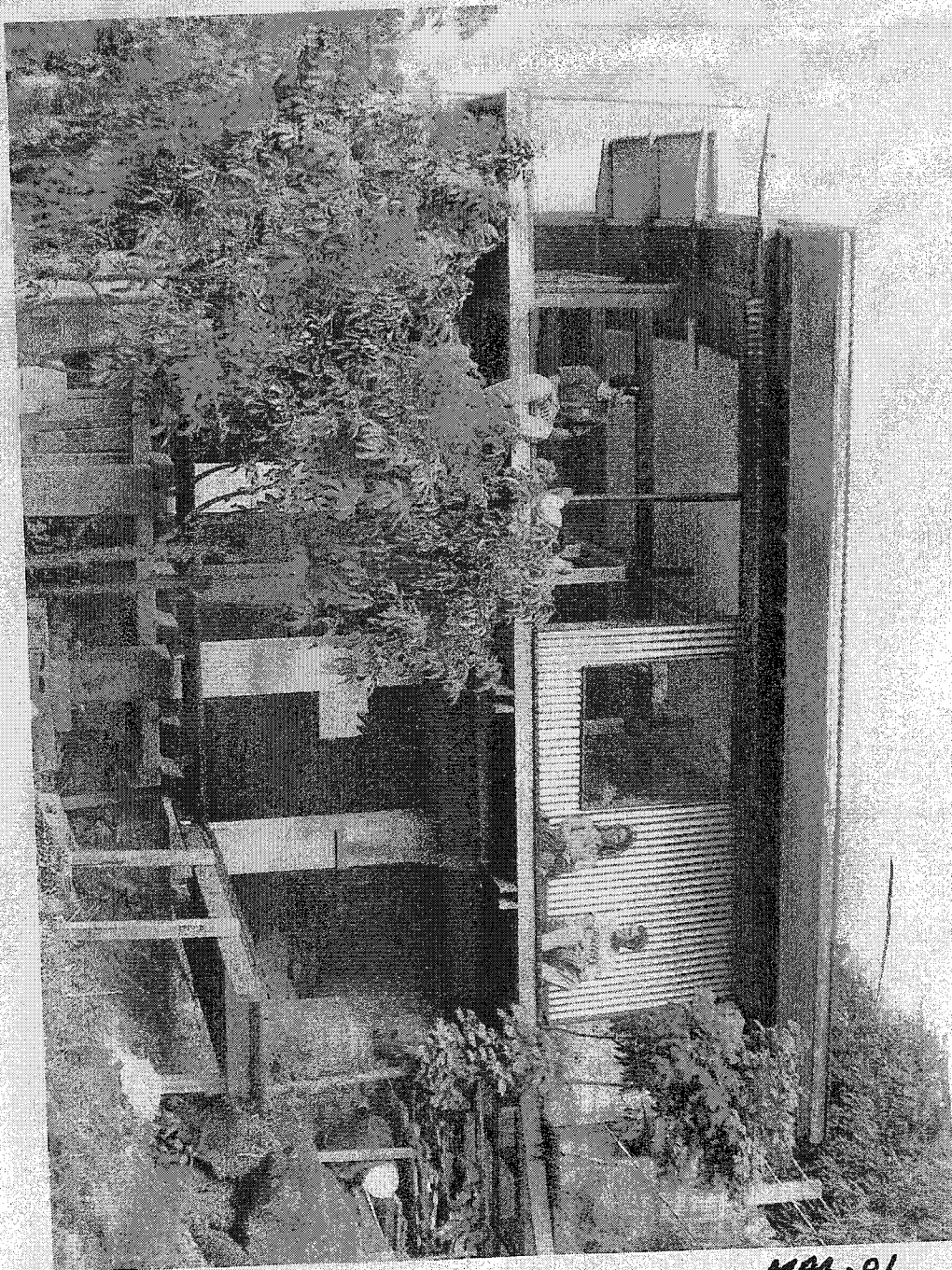
A soil association is made up of adjacent soils that occur as areas large enough to be shown individually on the soil map but are shown as one unit because the time and effort of delineating them separately cannot be justified. There is a considerable degree of uniformity in pattern and relative extent of the dominant soils, but the soils may differ greatly one from another. The name of an association consists of the names of the dominant soils, joined by a hyphen. Amalu-Olokui association is an example.

In most areas surveyed there are places where the soil material is so rocky, so shallow, or so severely eroded that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Gullied land is a land type on the islands.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soil in other places are assembled. Data on yields of crops under defined practices are assembled from farm or plantation records and from field or plot experiments on the same kinds of soil. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of users, among them farmers, managers of woodland and rangeland, and engineers.

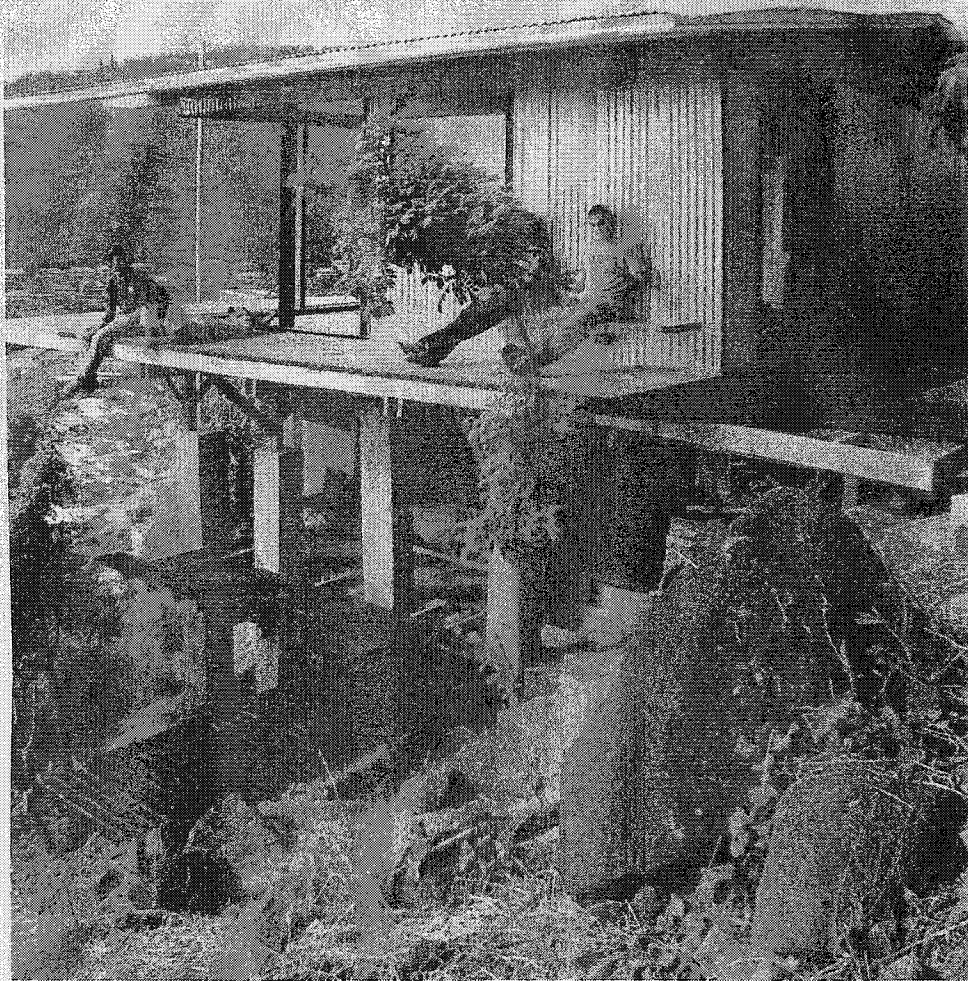
On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others, then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.



HSH-HA-HAWAII 2005

MAR. 01

EXHIBIT 23



HSH- HA - Hawaii 2005 March 1st

EXHIBIT 24



EXHIBIT 25



SITE INSPECTION FROM PALOLO MARCH 2, 2005

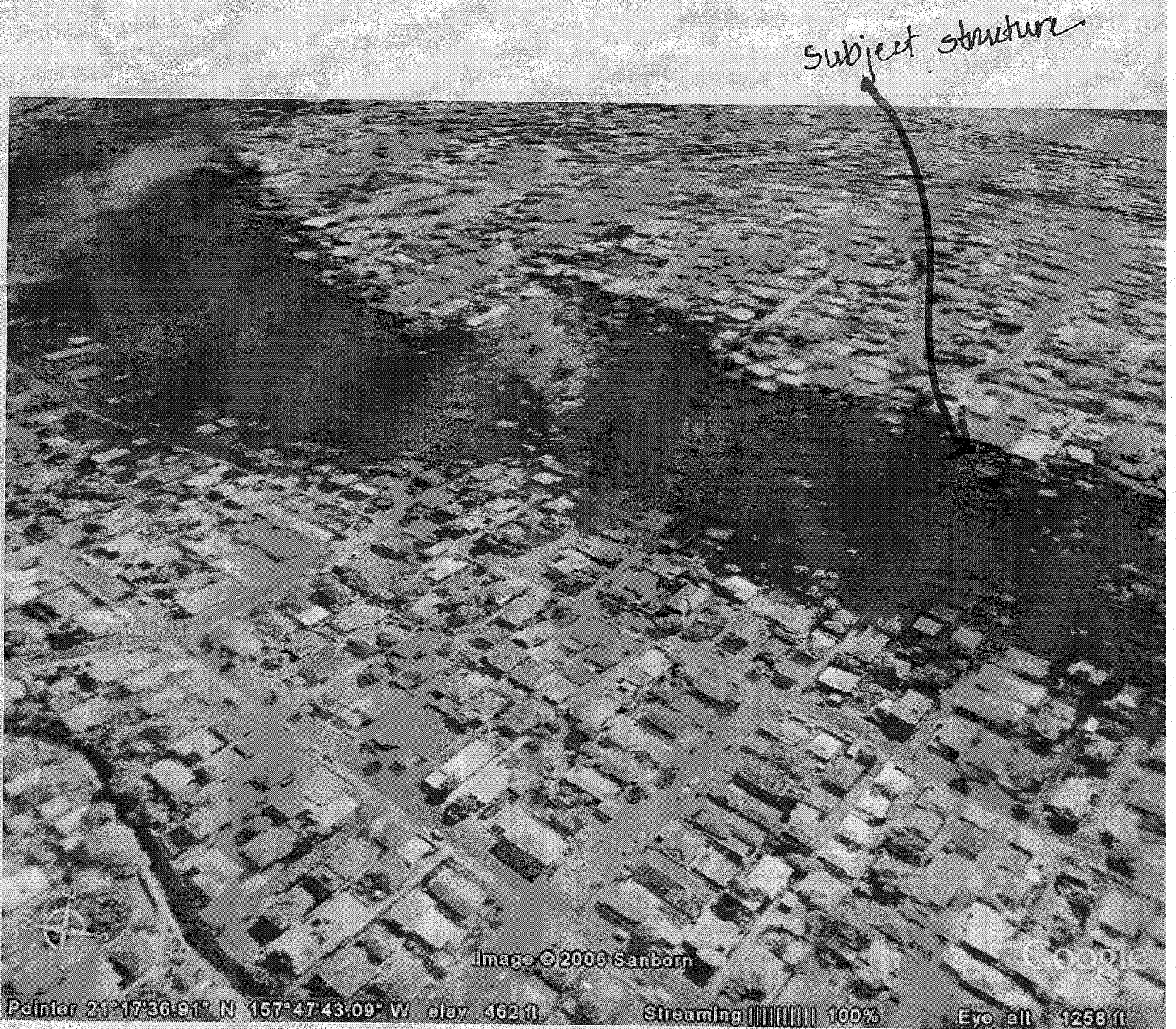


EXHIBIT 27



Image © 2006 DigitalGlobe

Image © 2006 Sanborn

© 2006 Google

Pointer 21°17'32.15" N 157°47'40.51" W elev 482 ft

Streaming ||||| 100%

Eye alt 1003 ft